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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,918	09/07/2006	Masakazu Okamoto	4633-0180PUS1	5389
2292 7590 03/05/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
TRIEU, THERESA				
ART UNIT		PAPER NUMBER		
3748				
NOTIFICATION DATE		DELIVERY MODE		
03/05/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/591,918

Applicant(s)

OKAMOTO ET AL.

Examiner

Theresa Trieu

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/55/02)
Paper No(s)/Mail Date Sept. 7, 2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Before line 1, insert --This application is the national phase under 35 U.S.C. 371 of PCT International Application No. PCT/JP2005/003792 which has an International filing date of March 4, 2005, which designated the United States of America --.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hokotani et al. (Hokotani) (Publication Number JP 2004-044569) in view of Origasa et al. (Origasa) (Publication Number JP 07-217406).

Regarding claims 1 and 7, Hokotani discloses a rotary expander which produces power by the expansion of supplied high-pressure fluid, the rotary expander 60 comprising: a plurality of rotary mechanism parts, each of which includes: a cylinder 81, 82 whose both ends are blocked; a piston 65 for forming a fluid chamber 62 in the cylinder 81, 82; and a blade 66 for

dividing the fluid chamber into a high- pressure chamber on the high-pressure side and a low-pressure chamber on the low-pressure side; and a rotating shaft 48 which engages with the piston 65 of each of the plural rotary mechanism parts; wherein: the plural rotary mechanism parts have different displacement volumes from each other, and are connected in series in ascending order of the different displacement volumes; in regard to two mutually connected rotary mechanism parts among the plural rotary mechanism parts one of which is a front-stage side rotary mechanism part and the other of which is a rear-stage side rotary mechanism part (see Fig. 25), the low-pressure chamber of the front-stage side rotary mechanism and the high-pressure chamber of the rear-stage side rotary mechanism part come into fluid communication with each other, resulting in the formation of a single expansion chamber 62; fluid which is introduced into the high-pressure chamber of a rotary mechanism part having the smallest displacement volume is carbon dioxide above critical pressure. However, Hokotani fails to disclose an injection passageway.

Origasa teaches that it is conventional in the art to utilize the rotary expander includes: an injection passageway 3 through which a part of the high-pressure fluid is introduced into the expansion chamber 2 in the process of expansion; and a distribution control mechanism 12 provided in the injection passageway 3 (Fig. 2). With regard claims 3-5, Origasa discloses the injection passageway 3 opens, at a terminal end thereof, to the high-pressure chamber of at least one rotary mechanism part among the plural rotary mechanism parts that has a displacement volume greater than the smallest displacement volume; the distribution control mechanism being formed by a regulating valve 12 the valve opening of which is regulatable; the distribution control mechanism 12 is formed by an openable/closable solenoid valve 12. It would have been

obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the injection passageway for introducing the high-pressure fluid into the expansion chamber, as taught by Origasa in the Hokotani apparatus, since the use thereof would have prevented the performance deterioration at the second stage of the expansion machine to which no foreign material is adhered.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hokotani in view of Origasa as applied to claim 1 above, and further in view of JP 61-122301 (JP '301).

The modified Hokotani device discloses the invention as recited above; however, the modified Hokotani fails to disclose the use of a differential pressure regulating valve.

JP '301 teaches that it is conventional in the art to utilize the distribution control mechanism is formed by a differential pressure regulating valve 15 the valve opening of which varies depending on the difference in pressure between fluid in the expansion chamber and fluid which has flowed out of a rotary mechanism part having the greatest displacement volume. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have substituted the differential pressure regulating valve as taught by JP '301 in the modified Hokotani apparatus as a matter of simple substitution of one known element for another to obtain predictable results. KSR, 550 U.S. (2007).

Prior Art

4. The IDS (PTO-1449) filed on Sept. 7, 2006 has been considered. An initialized copy is attached hereto.

Conclusion

5. Applicant is duly reminded that a complete response must satisfy the requirements of 37 C.F.R. 1.111, including: "The reply must present arguments pointing out the specific distinctions believed to render the claims, including any newly presented claims, patentable over any applied references. A general allegation that the claims "define a patentable invention" without specifically pointing out how the language of the claims patentably distinguishes them from the references does not comply with the requirements of this section. Moreover, "The prompt development of a clear Issue requires that the replies of the applicant meet the objections to and rejections of the claims." Applicant should also specifically point out the support for any amendments made to the disclosure. See MPEP §2163.06 II(A), MPEP §2163.06 and MPEP §714.02. The "disclosure" includes the claims, the specification and the drawings.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa Trieu whose telephone number is 571-272-4868. The examiner can normally be reached on Monday-Friday 8:30am- 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on 571-272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT

/Theresa Trieu/
Primary Examiner, Art Unit 3748